GUIDED DISCOVERING LEARNING PROGRAM (GDLP) FOR DEVELOPING SPATIAL INTELLIGENCE

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Abstract:

A Guided Discovery Learning Program abstract should summarize a research or project focused on using guided discovery methods to enhance learning. It highlights the approach's benefits in promoting active student engagement, fostering deeper understanding, and improving skills like critical thinking. The abstract should also mention the program's specific focus, such as a particular subject area or learning objective.

Spatial intelligence, also known as visual-spatial intelligence, is the ability to perceive, interpret, and manipulate objects and spatial relationships in two and three dimensions. It involves understanding visual information, imagining how objects would look from different perspectives, and mentally rotating objects. This intelligence is crucial for tasks like navigation, design, and understanding maps.

Guided discovery, also known as an inductive approach, is a technique or approach where a teacher provides examples of a language item and helps the learners to find out the rules themselves" (British Council website). At this point, it is important to differentiate deductive from inductive.

Spatial intelligence, a concept within Howard Gardner's theory of multiple intelligences, is the ability to perceive, understand, and manipulate the world visually and spatially, including the ability to mentally rotate objects and navigate environments.

Keywords: *Guided Discovering Learning Program (GDLP), Spatial Intelligence concepts, Characteristics of Guided Discovery Learning, Benefits of Guided Discovery Learning, How Guided Discovery Learning Enhances Spatial Intelligence etc.*

Introduction: Guided discovery learning is a teaching approach where teachers guide students to discover concepts and rules through exploration, questioning, and analysis, rather than directly presenting information. It's an active, student-centered method that encourages deeper learning and understanding by allowing students to take ownership of their learning.
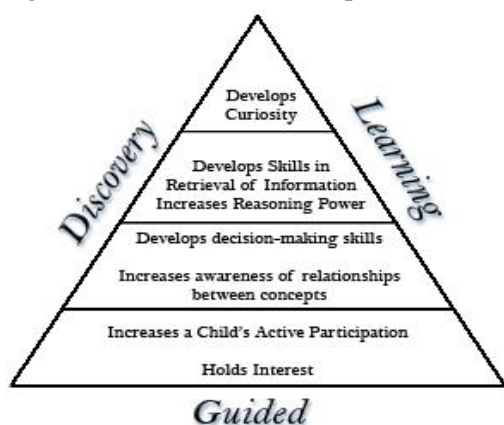
● **Characteristics of Guided Discovery Learning:-**

➢ **Active Engagement:**

o Students are actively involved in the learning process, exploring, questioning, and applying their knowledge.

➢ **Teacher Guidance:**

o While students are encouraged to discover, teachers provide guidance, support, and scaffolding to help them navigate the learning process.

➢ **Focus on Understanding:**

o The goal is for students to develop a deep understanding of concepts and relationships, rather than simply memorizing facts.

➢ **Constructivist Approach:**

o Students are encouraged to build their own

knowledge and understanding based on their experiences and explorations.

➢ **Emphasis on Problem-Solving:**

o Guided discovery often involves presenting students with problems or challenges that they must solve through exploration and discovery.

● **Benefits of Guided Discovery Learning:-**

➢ **Enhanced Engagement and Motivation:**

o Students are more motivated and engaged when they are actively involved in the learning process.

➢ **Improved Retention:**

o Knowledge gained through discovery is often better remembered and understood.

➢ **Development of Critical Thinking Skills:**

o Students learn to analyze information, evaluate evidence, and form their own conclusions.

➢ **Fostering Independence and Self-Directed Learning:**

o Students develop the skills to learn independently and become lifelong learners.

➢ **Deepening Understanding:**

o Students gain a more profound and meaningful understanding of the subject matter.

A Guided Discovery Learning Program (HELP) can effectively enhance spatial intelligence by encouraging students to explore and discover concepts on their own, rather than being directly taught the information. This approach allows students to develop their spatial skills through hands-on activities and problem-solving, ultimately improving their understanding of spatial relationships and visual information.

Spatial intelligence, also known as visual-spatial intelligence, is the ability to perceive, understand, and manipulate the visual world, including shapes, objects, and spatial relationships.

Spatial intelligence involves the capacity to mentally manipulate objects, visualize them in different

locations and positions, and understand the relationships between them in space.

● **How Guided Discovery Learning Enhances Spatial Intelligence:-**

➢ **Exploration and Discovery:**

o HELP programs provide opportunities for students to explore and discover concepts related to spatial intelligence, such as shapes, forms, and spatial relationships, through interactive activities and tasks.

➢ **Hands-on Activities:**

o Incorporating hands-on activities, like building with blocks, playing with puzzles, or using virtual tools, allows students to physically manipulate objects and develop their spatial reasoning skills.

➢ **Problem-Solving:**

o By engaging in problem-solving tasks that require spatial reasoning, students develop the ability to visualize, manipulate, and analyze information in a spatial context.

➢ **Scaffolding and Support:**

o While students are encouraged to explore independently, HELP programs provide scaffolding and support to guide their learning and ensure they remain within their "zone of proximal development".

➢ **Multisensory Tools:**

o Utilizing multisensory tools, like virtual reality or interactive software, can further enhance

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spatial intelligence by stimulating multiple senses and providing a more immersive learning experience.

➢ **Integration with STEM Subjects:**

o HELP programs can be effectively integrated into STEM subjects, as spatial skills are crucial for understanding concepts in science, technology, engineering, and mathematics.

● **Examples of HELP Programs:-**

➢ **Geo Gebra-assisted learning:**

o Dynamic geometry software like GeoGebra can be used to create interactive learning experiences that enhance spatial visualization skills.

➢ **Virtual lab simulations:**

o Virtual lab simulations can be used to explore complex spatial concepts, such as in chemistry or physics, in a safe and interactive environment.

➢ **Manipulative materials:**

o Using manipulative materials, like blocks, puzzles, or building kits, can help students develop their spatial reasoning skills through hands-on exploration.

➢ **Online games and activities:**

o Many online games and activities are designed to enhance spatial intelligence, such as Minecraft, Tetris, or virtual puzzles.

Conclusion: The conclusion for a Guided Discovery Learning Program (DLP) emphasizes the power of active learning and its positive impact on various learning outcomes. It highlights that by engaging learners in a process of discovery, rather than simply providing information, they gain a deeper understanding, develop critical thinking skills, and take ownership of their learning.

Spatial intelligence is a vital component of both human cognition and the development of AI systems, allowing for a deeper understanding of the physical world. It encompasses abilities like mental rotation, spatial visualization, and the perception of objects in space. By incorporating spatial intelligence into AI, researchers are pushing towards more human-like interactions with the environment, leading to advancements in fields like robotics, autonomous systems, and intelligent assistants.

References:

1. Bruner, J. S. (1961). "The act of discovery". Harvard Educational Review. 31 (1): 21–32.

2. Carroll, J., & Beman, V. (2015). "Boys, inquiry learning and the power of choice in middle school English classroom". Adolescent Success. 15(1): 4–17.

3. Monroe, P. (Ed.). (2011). "Discovery, method of". A Cyclopedia of Education Vol. 2, p. 336. New York, NY: The Macmillan Company.

4. Paas, F., & Van Gog, T. (2006). "Optimising worked example instruction: different ways to increase German cognitive load". Learning and Instruction. 16(2):87–91

5. Gardner Howard (2006). Multiple Intelligences: New Horizons. p 6-7.

6. Van Schaik Leon (2008). Spatial Intelligence: New Futures For Architecture. John Wiley & Son Inc Great Britain. ISBN 978-0-470-72322-7 (hb) 978-0470-72323-4 (pb)

Websites:

1. www.google.com

2. www.guideddiscoveringlearning Program.com

3. www.spatialintelligence.com